B.C.A DEGREE EXAMINATION,NOVEMBER 2018
I Year II Semester
Allied Paper -II
ALLIED MATHEMATICS -II

Time : 3 Hours **Max.marks :75**

Section A $(10 \times 2 = 20)$ Marks

Answer any **TEN** questions

1. Solve the system of equation using gauss elimination method 3x+y=7, x+3y=5.
2. Define Diagonally Dominant matrix.
3. Form the divided difference table

X :	2	4	6	8	10	12
Y :	6	12	24	48	96	192

4. Prove that E $= 1+\boldsymbol{\Delta}$.
5. Write the formula for Simpson's $\frac{\mathbf{3}}{\mathbf{8}}$th rule.
6. Write the formula for Newton's forward and backward interpolation.
7. Define Random variable.
8. Define Normal distribution.
9. Write the types of correlation.
10. Define regression.
11. Write the formula for inverse Lagrange's interpolation.
12. Define scatter diagram.

Section B $(5 \times 5 = 25)$ Marks

Answer any **FIVE** questions

13. Find the root of the equation $\mathbf{x^3-6}x\mathbf{+4=0}$. Using Newton raphson method. Correct to 3 decimal places.
14. From the following table find f(x) and hence f(6) using Newton's interpolation formula.

x :	1	2	7	8
F(x) :	1	5	5	4

15. Evaluate $\int_{\mathbf{0}}^{\mathbf{6}} \frac{\mathbf{1}}{\mathbf{1+x}}\mathbf{d}x$. Using trapezoidal rule and Simpson $\frac{\mathbf{1}}{\mathbf{3}}$rd rule.

16. The mean of a Binomial distribution is 5 and standard deviation is 2 . determine the distribution.

17. Find the rank correlation coefficient from the following data

X :	92	89	87	86	86	77	71	63	53	50
Y :	86	83	91	77	68	85	52	82	37	57

18. If x and y are two variables then E(xy) = E(x).E(y)

19. Find the regression equation of X on Y from the following data

X :	2	4	5	6	8	11
Y :	18	12	10	8	7	5

Section C $(3 \times 10 = 30)$ Marks

Answer any **THREE** questions

20. Solve the system of equation by gauss seidal method. Correct to 3 decimal places.

    10x+y+2z=13;

    x+10y-z=10;

    3x+2y+10z=15;

21. Using Lagrange's interpolation formula find Y(10) from the following table

X :	5	6	9	11
Y :	12	13	14	16

22. Find x when f(x) =85 for the following data using Lagrange's inverse interpolation formula.

x	2	5	8	14
f(x)	94.8	87.9	81.3	68.7

23. The random variable x as the following distribution.

x :	0	1	2	3	4	5	6	7
p(x) :	0	k	2k	2k	3k	$\mathbf{k^2}$	$2\mathbf{k^2}$	$7\mathbf{k^2}$+k

    Find (i) find the value of k.

    (ii) P(x<6).

    (iii) P(x$\geq$ **6**).

    (iv) P(0<x<5).

24. Find the coefficient of correlation from the following data

X :	1	2	3	4	5	6	7	8	9
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